



Los Angeles County Employees Retirement Association

Investments Division

OPEB MASTER TRUST

PERFORMANCE REPORT

For the quarter ended
June 30, 2022

An aerial photograph of Los Angeles at sunset. The city skyline is visible in the background, with the sun setting behind the mountains, casting a warm glow over the city. The foreground shows residential buildings, palm trees, and a river.

review

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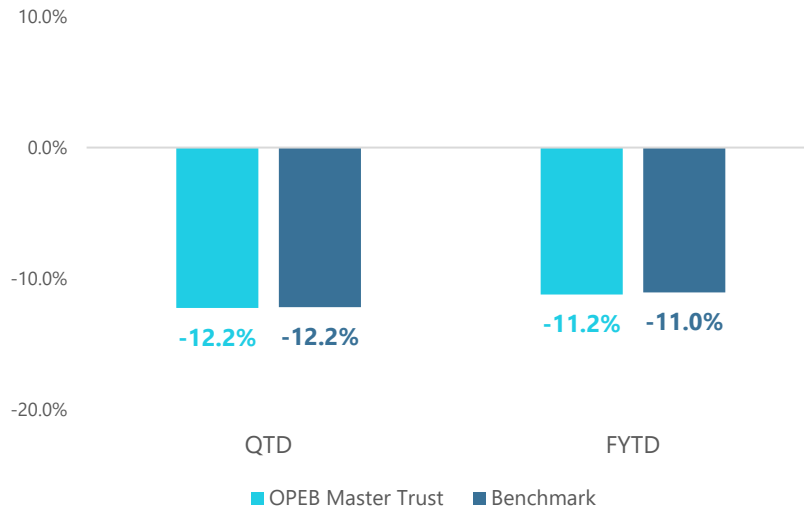
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opeb trust

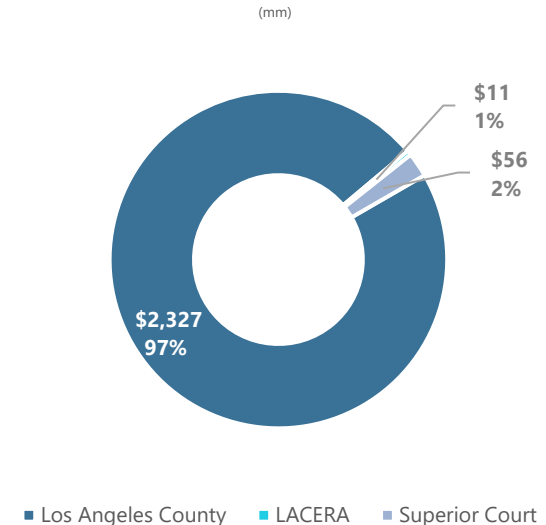
Quarterly Snapshot

for the quarter ended June 30, 2022

Performance (net)



Sub-Trust Ownership



Ending Market Value

2,394

↓ -9%
from prior quarter

Sharpe Ratio¹

0.3

↓ -55%
from prior quarter

Batting Average²

38%

↓ -38%
from prior quarter

Standard Deviation¹

13.4

↑ 7%
from prior quarter

Tracking Error¹

0.3

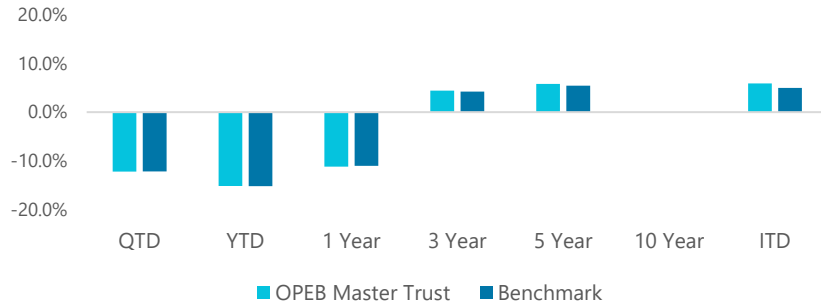
↑ 3%
from prior quarter

1. 3-year annualized.
2. Percentage of managers that outperformed the benchmark for the quarter.

Summary

for the quarter ended June 30, 2022

Performance (net)



	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD
OPEB Master Trust	-12.2%	-15.2%	-11.2%	4.4%	5.8%	--	5.9%
Benchmark	-12.2%	-15.2%	-11.0%	4.2%	5.4%	--	5.0%
Excess	-0.1%	0.0%	-0.2%	0.2%	0.3%	--	0.9%
Sub-Trusts							
Los Angeles County	-12.2%	-15.2%	-11.2%	4.4%	5.8%	--	5.4%
LACERA	-12.3%	-15.3%	-11.3%	4.4%	5.8%	--	5.4%
Superior Court	-12.2%	-15.0%	-11.0%	4.4%	5.6%	--	6.6%

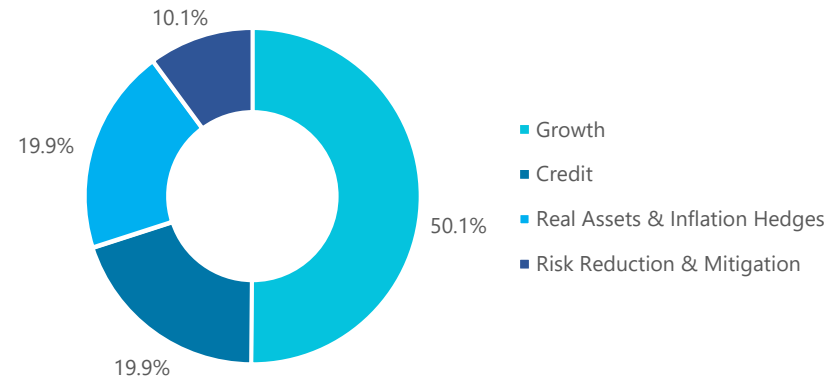
Cumulative Return



Functional Category

	QTD	FYTD	1 Year	3 Year	5 Year
OPEB Growth	-15.7%	-16.3%	-16.3%	6.2%	7.0%
OPEB Growth Policy Benchmark	-15.8%	-16.5%	-16.5%	6.0%	6.7%
Excess	0.1%	0.2%	0.2%	0.3%	0.3%
OPEB Credit	-7.2%	-9.8%	-9.8%	-0.6%	--
OPEB Credit Policy Benchmark	-7.2%	-9.7%	-9.7%	-0.2%	--
Excess	0.0%	0.0%	0.0%	-0.4%	--
OPEB Real Assets & Inflation Hedges	-12.0%	0.5%	0.5%	5.9%	--
OPEB RA & IH Policy Benchmark	-12.1%	0.2%	0.2%	5.6%	--
Excess	0.0%	0.3%	0.3%	0.2%	--
OPEB Risk Reduction & Mitigation	-3.7%	-8.2%	-8.2%	-0.5%	1.4%
OPEB RR & M Policy Benchmark	-3.7%	-8.3%	-8.3%	-0.6%	1.2%
Excess	0.0%	0.1%	0.1%	0.1%	0.2%

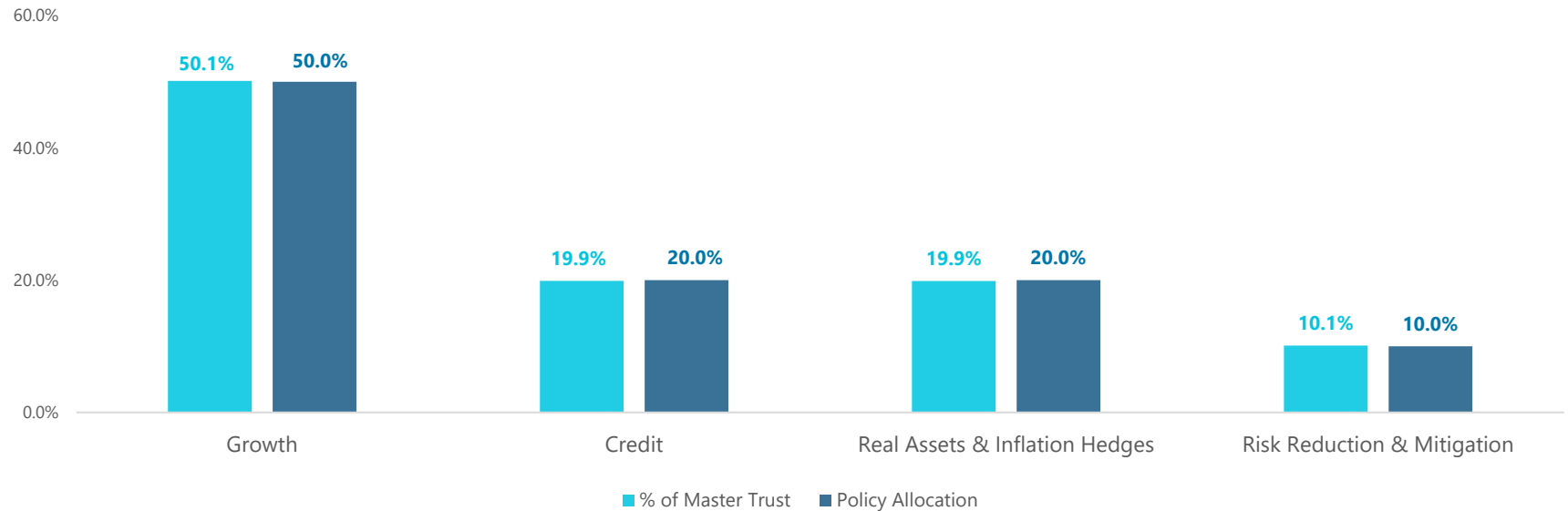
Exposure



Asset Allocation

for the quarter ended June 30, 2022

Actual vs. Policy



	Ending Market Value (mm)	% of Master Trust	Policy Allocation	Over / Under (%)	Over / Under (mm)
OPEB Master Trust	2,394	100.0%	100.0%		
Growth	1,200	50.1%	50.0%	0.1%	3
Credit	476	19.9%	20.0%	-0.1%	-2
Real Assets & Inflation Hedges	475	19.9%	20.0%	-0.1%	-3
Risk Reduction & Mitigation	242	10.1%	10.0%	0.1%	3
Operational Cash	0	0.0%			

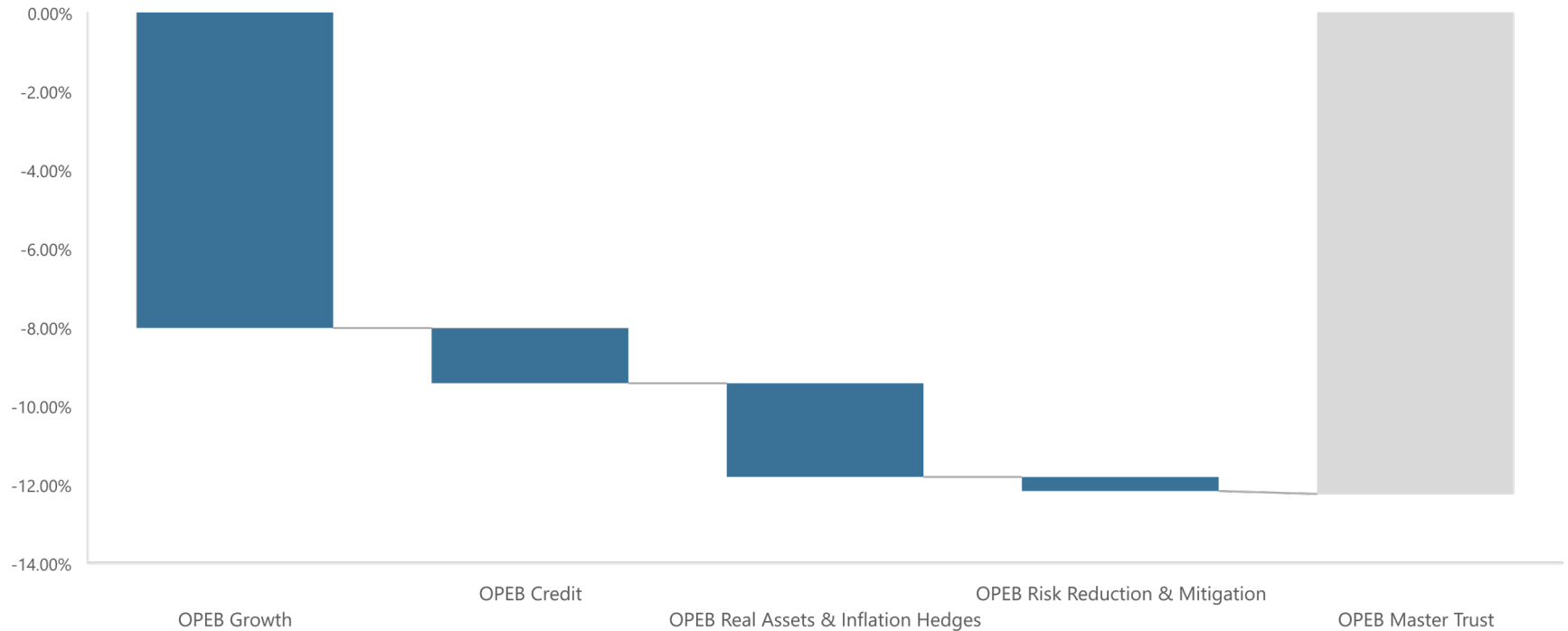
Contribution to Return

for the quarter ended June 30, 2022



Los Angeles County Employees Retirement Association

QTD Contribution to Return



Functional Category		Contributors		Detractors	
OPEB Growth	-8.02%	OPEB SSGA Cash	0.00%	OPEB Global Equities	-8.04%
OPEB Credit	-1.40%			OPEB BTC REITs	-1.83%
OPEB Real Assets & Inflation Hedges	-2.39%			OPEB BTC High Yield Bonds	-0.59%
OPEB Risk Reduction & Mitigation	-0.36%			OPEB BlackRock Bank Loans	-0.44%
OPEB Master Trust	-12.24%			OPEB BTC IG Bonds	-0.36%

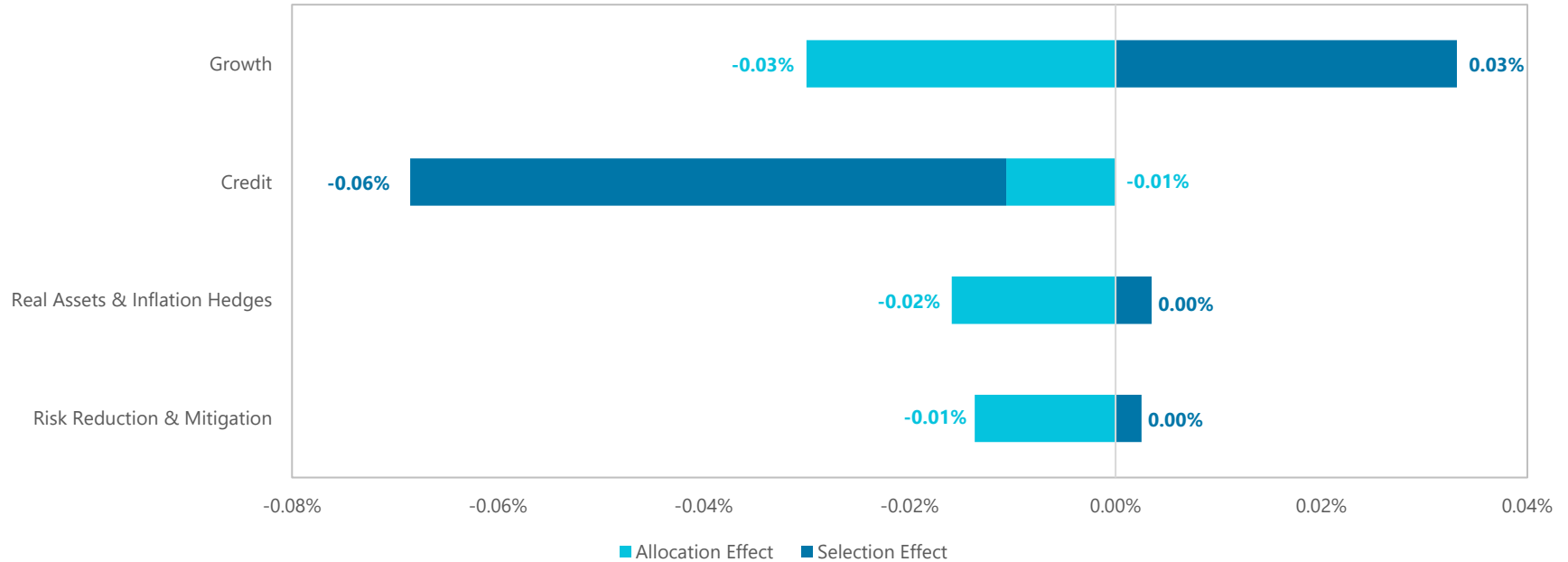
Return Attribution

for the quarter ended June 30, 2022



Los Angeles County Employees Retirement Association

QTD Performance Attribution¹



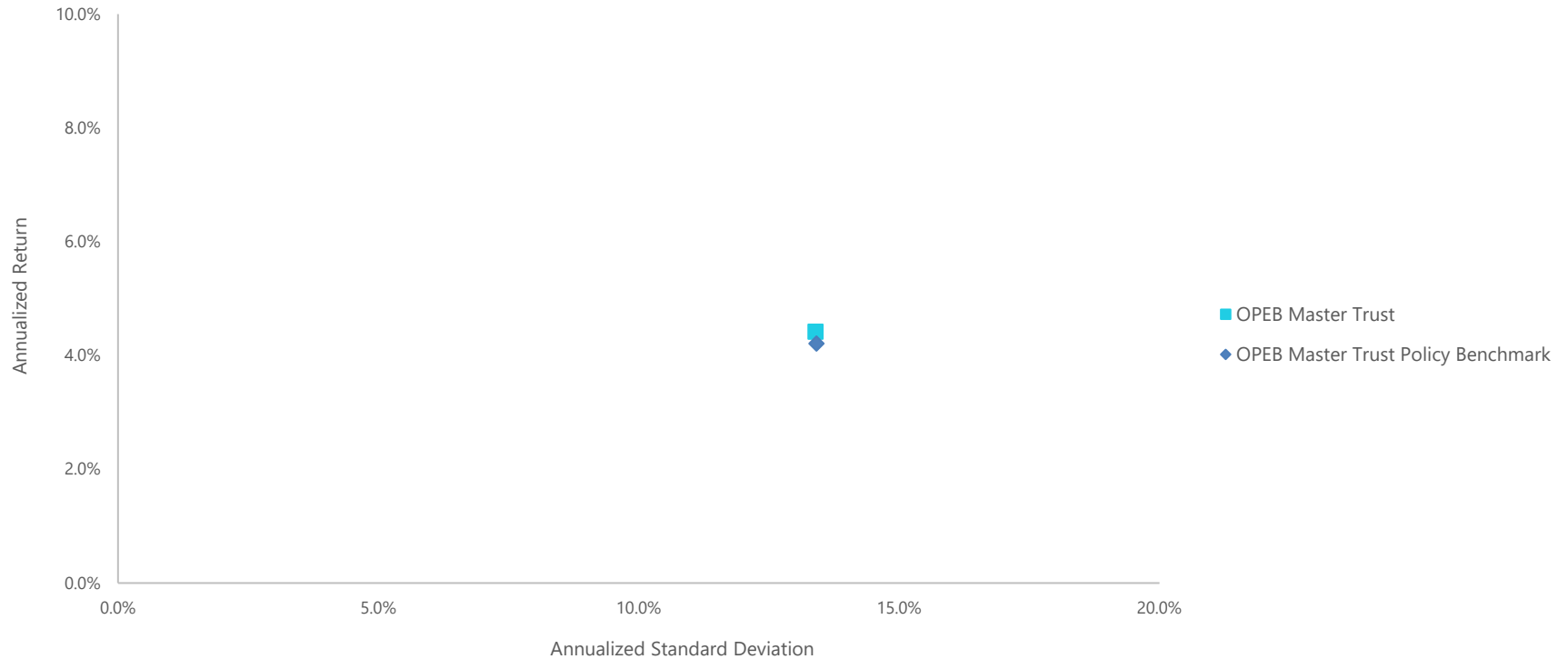
	Ending Market Value (mm)	% of Master Trust	Policy Allocation	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Total Value Add
OPEB Master Trust	2,394	100.0%	100.0%	-12.2%	-12.2%	-0.07%	-0.02%	-0.03%
Growth	1,200	50.1%	50.0%	-15.7%	-15.8%	-0.03%	0.03%	0.00%
Credit	476	19.9%	20.0%	-7.2%	-7.2%	-0.01%	-0.06%	-0.01%
Real Assets & Inflation Hedges	475	19.9%	20.0%	-12.0%	-12.1%	-0.02%	0.00%	-0.02%
Risk Reduction & Mitigation	242	10.1%	10.0%	-3.7%	-3.7%	-0.01%	0.00%	-0.01%
Operational Cash	0	0.0%						

1. Total Value Add includes Interaction Effect.

Risk vs. Return

for the quarter ended June 30, 2022

3 Year (Annualized)¹



	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Beta	Tracking Error
OPEB Master Trust	4.4%	13.4%				
OPEB Master Trust Policy Benchmark	4.2%	13.4%	0.34	0.69	1.00	0.3%

1. Composite risk statistics are relative to the policy benchmark.

Performance Detail

for the quarter ended June 30, 2022



Los Angeles County Employees Retirement Association

Annualized Net Returns

	% of Total Fund	Ending Market Value (mm)	Prior Quarter Ending MV (mm)	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD
OPEB Master Trust	100.0%	2,394	2,618	-12.2%	-15.2%	-11.2%	4.4%	5.8%	--	5.9%
OPEB Master Trust Policy Benchmark				-12.2%	-15.2%	-11.0%	4.2%	5.4%	--	5.0%
Sub-Trusts										
Los Angeles County	97.2%	2,327	2,545	-12.2%	-15.2%	-11.2%	4.4%	5.8%	--	5.4%
LACERA	0.5%	11	10	-12.3%	-15.3%	-11.3%	4.4%	5.8%	--	5.4%
Superior Court	2.3%	56	63	-12.2%	-15.0%	-11.0%	4.4%	5.6%	--	6.6%
OPEB Growth	50.1%	1,200	1,335	-15.7%	-20.3%	-16.3%	6.2%	7.0%	--	8.9%
OPEB Growth Policy Benchmark				-15.8%	-20.4%	-16.5%	6.0%	6.7%	--	8.7%
OPEB Global Equities	50.1%	1,200	1,335	-15.7%	-20.3%	-16.3%	6.2%	7.0%	--	6.7%
MSCI ACWI IMI Net				-15.8%	-20.4%	-16.5%	6.0%	6.7%	--	6.4%
OPEB Credit	19.9%	476	512	-7.2%	-9.8%	-9.8%	-0.6%	--	--	0.9%
OPEB Credit Policy Benchmark				-7.2%	-10.3%	-9.7%	-0.2%	--	--	1.3%
Liquid Credit										
OPEB BlackRock Bank Loans	10.0%	239	256	-4.5%	-4.8%	-3.4%	1.6%	--	--	2.1%
S&P/LSTA Leverage Loan				-4.5%	-4.6%	-2.8%	2.1%	--	--	2.6%
OPEB BTC EM Debt LC	3.9%	94	102	-8.6%	-14.4%	-19.3%	-6.2%	--	--	-2.7%
JPM GBI-EM Global Diversified				-8.6%	-14.5%	-19.3%	-5.8%	--	--	-2.3%
OPEB BTC High Yield Bonds	6.0%	143	154	-10.0%	-14.2%	-12.9%	-0.3%	--	--	1.6%
BBG BARC US Corp HY				-9.8%	-14.2%	-12.8%	0.2%	--	--	2.0%
OPEB Real Assets & Inflation Hedges	19.9%	475	519	-12.0%	-9.9%	0.5%	5.9%	--	--	5.6%
OPEB RA & IH Policy Benchmark				-12.1%	-10.2%	0.2%	5.6%	--	--	5.5%
OPEB BTC Commodities	3.9%	93	107	-5.8%	19.0%	24.8%	14.5%	--	--	8.8%
Bloomberg Commodity Index Total Return				-5.7%	18.4%	24.3%	14.3%	--	--	8.7%
OPEB BTC REITS	10.1%	241	263	-18.1%	-21.2%	-6.5%	2.3%	--	--	4.1%
DJ US SELECT REAL ESTATE SECURITIES				-18.1%	-21.1%	-6.4%	2.5%	--	--	4.3%
OPEB BTC TIPS	5.9%	141	149	-6.1%	-8.9%	-5.2%	3.1%	--	--	3.6%
Bloomberg U.S. Treasury; U.S. TIPS				-6.1%	-8.9%	-5.1%	3.0%	--	--	3.5%
OPEB Risk Reduction & Mitigation	10.1%	242	251	-3.7%	-8.2%	-8.2%	-0.5%	1.4%	--	1.3%
OPEB RR & M Policy Benchmark				-3.7%	-8.3%	-8.3%	-0.6%	1.2%	--	1.1%
OPEB BTC Investment Grade Bonds	8.1%	193	201	-4.7%	-10.2%	-10.2%	-0.9%	--	--	1.3%
BBG BARC Agg				-4.7%	-10.3%	-10.3%	-0.9%	--	--	1.2%
OPEB SSGA Cash	2.0%	49	51	0.2%	0.2%	0.2%	0.9%	1.5%	--	1.0%
OPEB Cash Policy Benchmark				0.1%	0.2%	0.2%	0.7%	1.2%	--	0.7%

risk reports

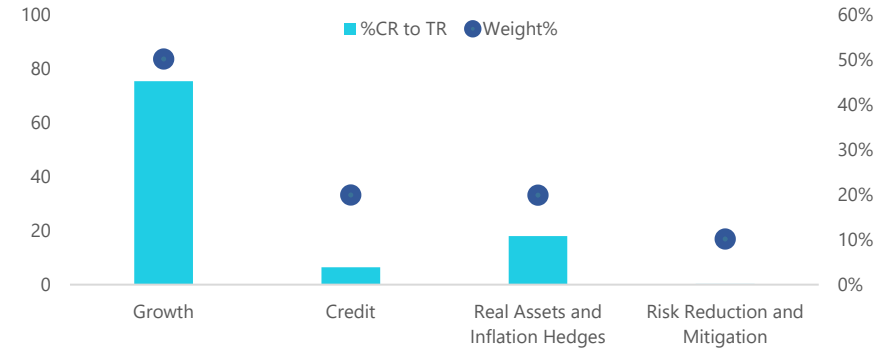
Summary

for the quarter ended June 30, 2022

Risk Summary

	Value
Total Risk	11.94
Benchmark Risk	12.60
Active Risk	0.88
Portfolio Beta	0.95
Effective Duration	1.46

Contribution to Risk

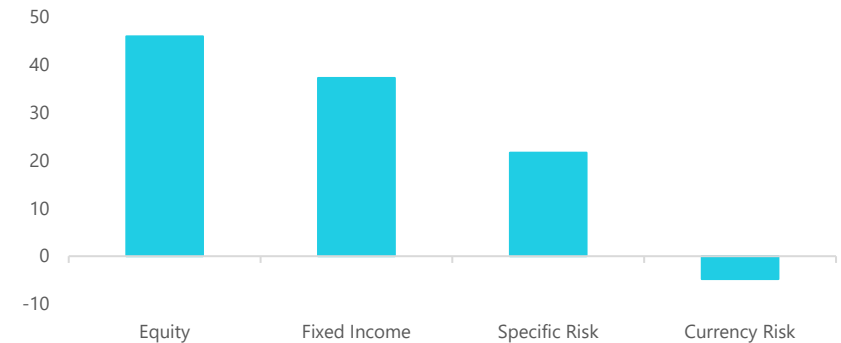


	Mkt Value (mm)	Weight%	Total Risk	Risk Contribution	%CR to TR
Total Fund	2,394	100.0%	11.94	11.94	100.00
Growth	1,200	50.1%	18.17	9.00	75.36
Credit	476	19.9%	4.87	0.77	6.43
Real Assets and Inflation Hedges	475	19.9%	12.19	2.14	17.95
Risk Reduction and Mitigation	242	10.1%	4.20	0.03	0.26

Risk Decomposition

Risk Source	Portfolio			Active		
	Risk Contribution	%Risk	Correlation	Risk Contribution	%Risk	Correlation
Total Risk	11.94	100.00	1.00	0.88	100.00	1.00
Local Market Risk	11.30	94.66	1.00	0.92	104.76	0.98
Common Factor Risk	11.26	94.27	0.99	0.73	83.14	0.87
Equity	10.48	87.77	0.99	0.40	45.91	0.77
Fixed Income	0.78	6.49	0.62	0.33	37.23	0.75
Specific Risk	0.05	0.40	0.06	0.19	21.62	0.47
Currency Risk	0.64	5.34	0.57	-0.04	-4.76	-0.24

Active Risk from Risk Factors



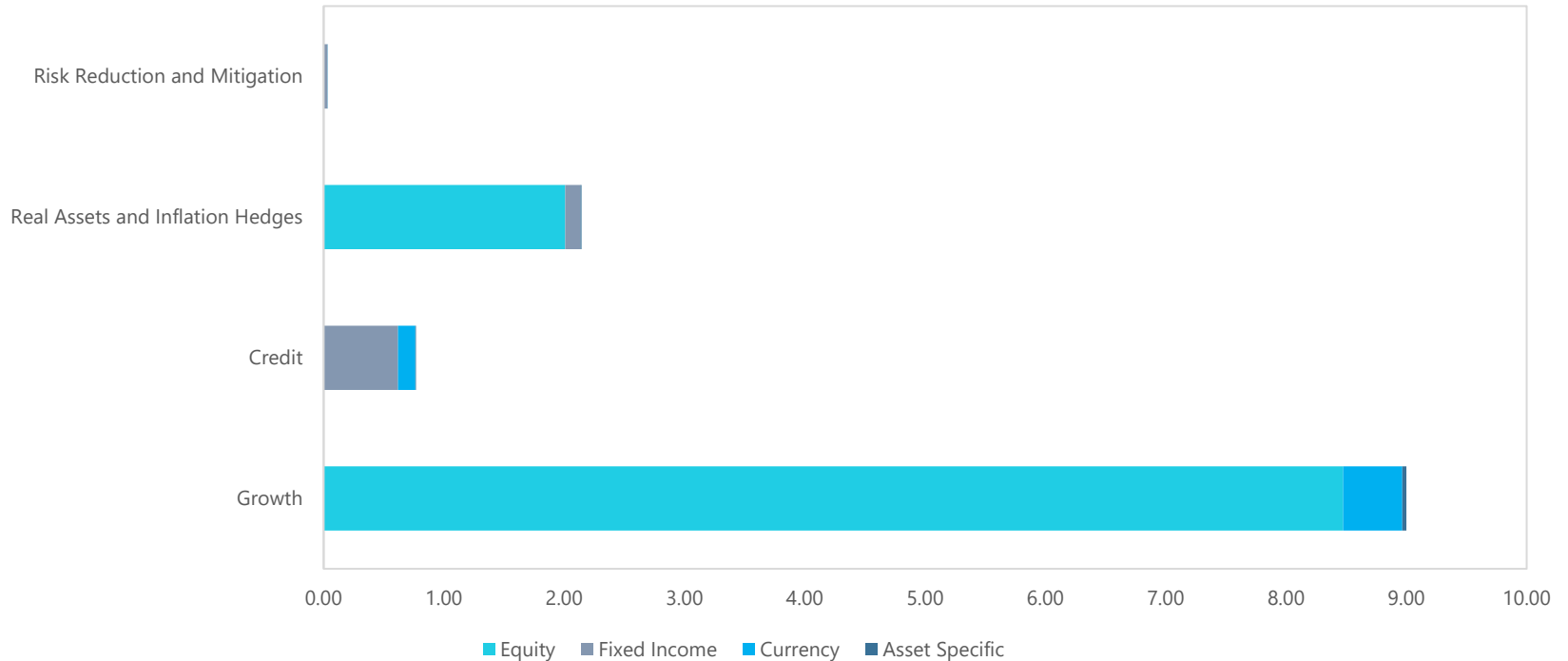
Risk Contribution Breakdown

for the quarter ended June 30, 2022



Los Angeles County Employees Retirement Association

By Risk Type

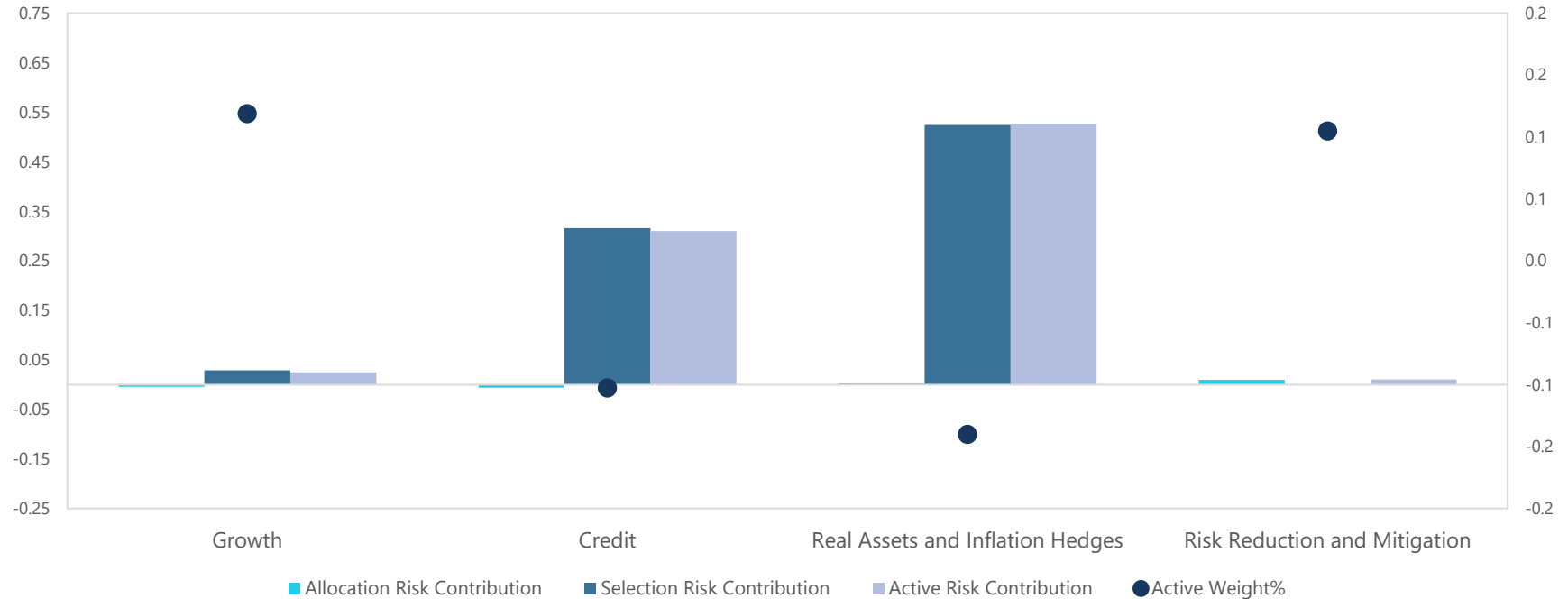


Functional Category	Mkt Value	Weight%	Total Risk	%CR to Total Risk	Port Risk Contribution	Equity	Fixed Income	Currency	Asset Specific
Total Fund	2,394	100.0%	11.94	100.00	11.94	10.48	0.78	0.64	0.05
Growth	1,200	50.1%	18.17	75.36	9.00	8.47	0.00	0.49	0.03
Credit	476	19.9%	4.87	6.43	0.77	0.00	0.62	0.14	0.01
Real Assets and Inflation Hedges	475	19.9%	12.19	17.95	2.14	2.01	0.13	0.00	0.01
Risk Reduction and Mitigation	242	10.1%	4.20	0.26	0.03	0.00	0.03	0.00	0.00

Allocation Selection

for the quarter ended June 30, 2022

Active Total Risk



Functional Category	Active Weight%	Allocation			Selection			Active Risk Contribution
		Volatility	Correlation	Risk Contribution	Volatility	Correlation	Risk Contribution	
Active Total Risk				0.00			0.87	0.88
Growth	0.12	6.18	-0.54	0.00	0.08	0.70	0.03	0.03
Credit	-0.10	8.85	0.63	-0.01	2.35	0.68	0.32	0.31
Real Assets and Inflation Hedges	-0.14	6.32	-0.30	0.00	3.11	0.85	0.52	0.53
Risk Reduction and Mitigation	0.10	13.04	0.72	0.01	0.22	0.04	0.00	0.01

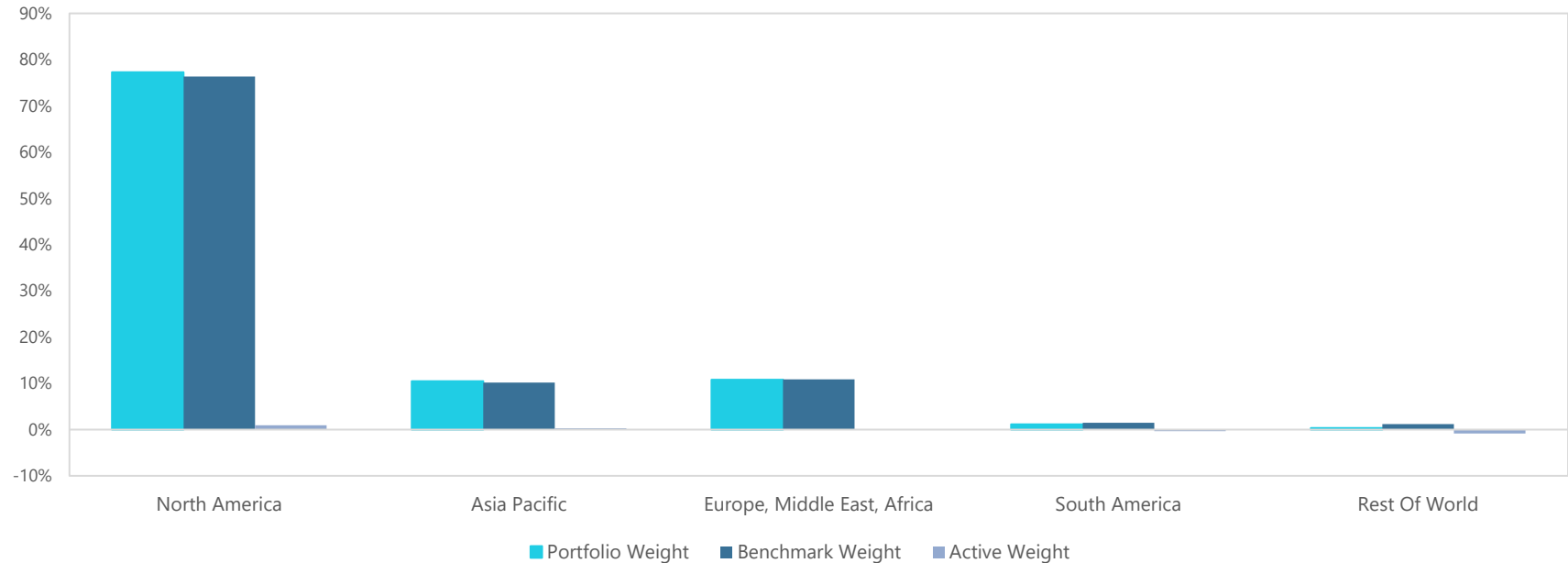
Portfolio Allocation

for the quarter ended June 30, 2022



Los Angeles County Employees Retirement Association

By Region

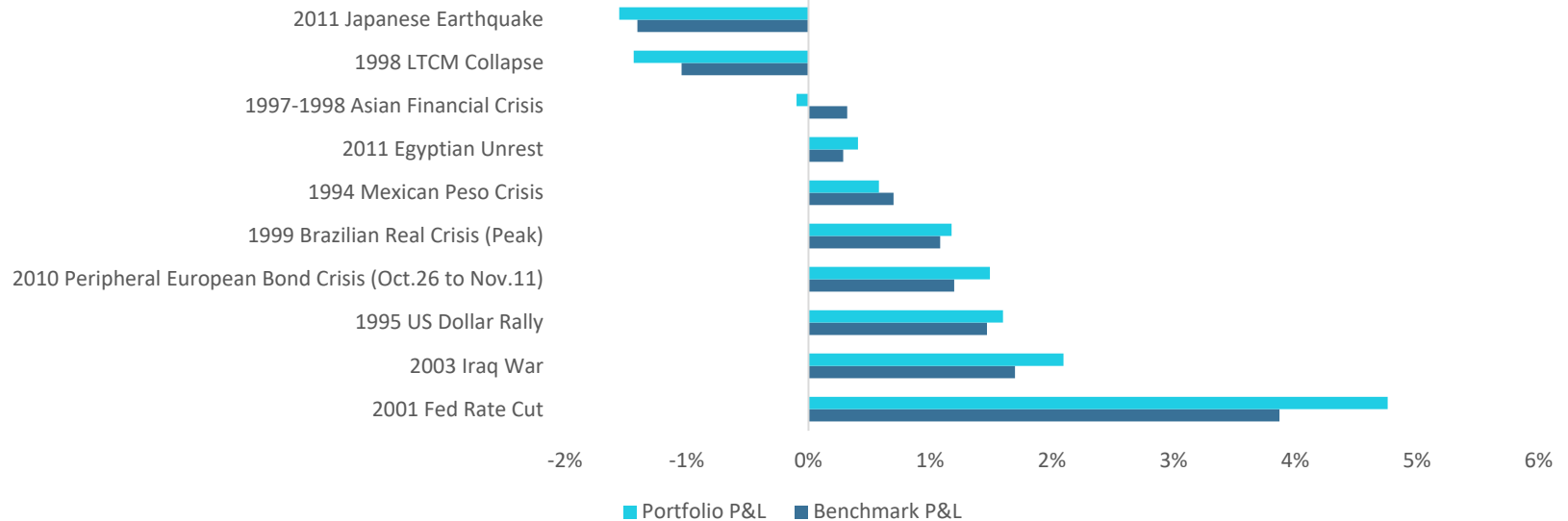


Region	Weight%			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking
	Portfolio	Benchmark	Active				
Total Fund	100.00%	100.00%	0.00%	11.94	0.88	100.00	0.01
North America	77.28%	76.34%	0.94%	11.48	0.90	103.18	0.06
Asia Pacific	10.47%	10.16%	0.31%	14.47	0.03	3.89	0.06
Europe, Middle East, Africa	10.79%	10.85%	-0.07%	17.25	-0.01	-1.65	0.05
South America	1.12%	1.46%	-0.34%	19.12	-0.01	-1.21	0.05
Rest Of World	0.35%	1.19%	-0.84%	9.18	-0.04	-4.21	0.05

Stress Tests

for the quarter ended June 30, 2022

Top 10 Best Stress Scenarios



Scenario	Portfolio P&L	Benchmark P&L	Market Change (\$)
2001 Fed Rate Cut	4.76%	3.87%	124,124,576
2003 Iraq War	2.09%	1.70%	54,628,592
1995 US Dollar Rally	1.60%	1.47%	41,681,673
2010 Peripheral European Bond Crisis (Oct.26 to Nov.11)	1.49%	1.20%	38,865,462
1999 Brazilian Real Crisis (Peak)	1.18%	1.08%	30,670,404
1994 Mexican Peso Crisis	0.58%	0.70%	15,092,700
2011 Egyptian Unrest	0.41%	0.28%	10,591,924
1997-1998 Asian Financial Crisis	-0.10%	0.32%	(2,566,038)
1998 LTCM Collapse	-1.44%	-1.04%	(37,453,153)
2011 Japanese Earthquake	-1.55%	-1.41%	(40,548,845)

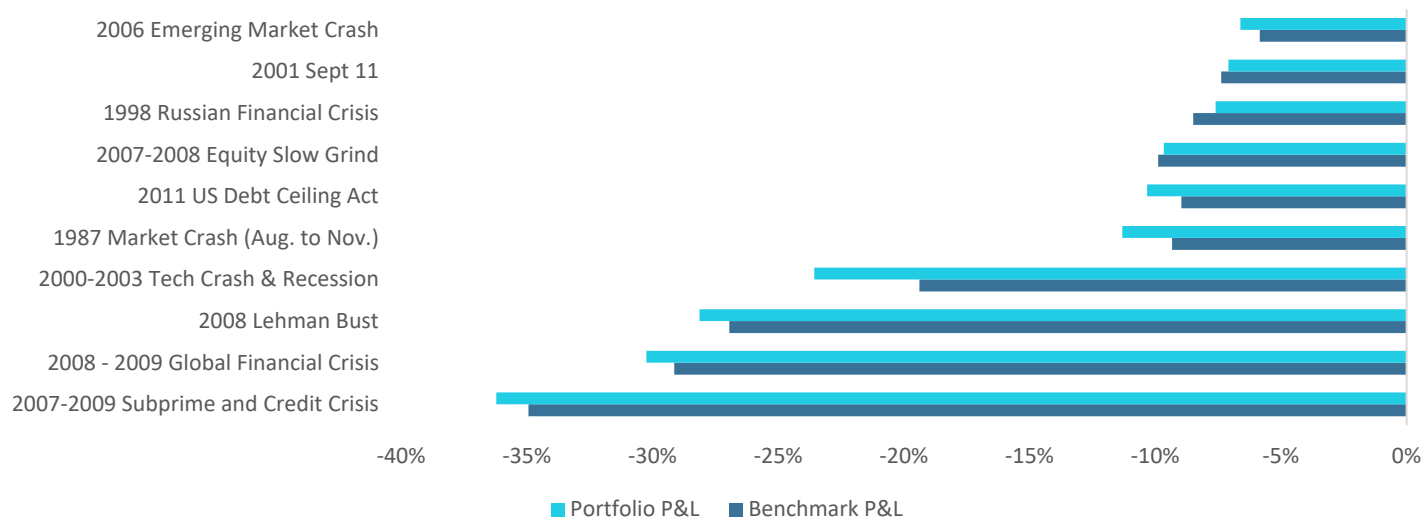
Stress Tests

for the quarter ended June 30, 2022



Los Angeles County Employees Retirement Association

Top 10 Worst Stress Scenarios



Scenario	Portfolio P&L	Benchmark P&L	Market Change (\$)
2007-2009 Subprime and Credit Crisis	-36.22%	-34.94%	(944,529,833)
2008 - 2009 Global Financial Crisis	-30.24%	-29.13%	(788,706,073)
2008 Lehman Bust	-28.13%	-26.95%	(733,723,008)
2000-2003 Tech Crash & Recession	-23.57%	-19.38%	(614,660,564)
1987 Market Crash (Aug. to Nov.)	-11.31%	-9.33%	(295,039,101)
2011 US Debt Ceiling Act	-10.32%	-8.96%	(269,277,974)
2007-2008 Equity Slow Grind	-9.66%	-9.89%	(251,914,283)
1998 Russian Financial Crisis	-7.60%	-8.49%	(198,130,869)
2001 Sept 11	-7.09%	-7.38%	(184,858,693)
2006 Emerging Market Crash	-6.61%	-5.84%	(172,362,084)

appendix

A

ANNUAL RETURN

The total return of a security over a specified period, expressed as an annual rate of interest.

ACTIVE RISK

The expected standard deviation of the differential return between the portfolio and the benchmark. Active total risk arises from active management, and it is the result of active weights (deviations from the benchmark at the asset level) and therefore active exposures; for passively managed portfolios, it is referred to as “total tracking error.”

ACTIVE RISK CONTRIBUTION

Percent contribution to active total risk (or tracking error). The percent of active total risk that an individual asset or risk source contributes. For example, a % CR to Active Total Risk of 10% indicates that 10% of the portfolio’s active total risk is arising from the active position in that particular asset.

B

BASIS POINTS (BPS)

One one-hundredth of one percent. One hundred basis points equal one percent.

BETA

A measure of the volatility of a stock relative to the overall market. A beta of less than one indicates lower risk than the market; a beta of more than one indicates higher risk than the market.

D

DURATION

A measure of the price sensitivity of a bond portfolio to changes in interest rates.

F

FUTURES CONTRACT

Agreement to buy or sell a specific amount of a commodity or financial instrument at a particular price and a stipulated future date.

H

HIGH YIELD BOND

A bond with a low investment quality and credit worthiness, usually with a rating of BB or less.

I

INFORMATION RATIO

The excess return (alpha) per unit of active risk (tracking error).

INTERNAL RATE OF RETURN (IRR)

A total rate of return that gives full weight to the size and timing of cash flows over the period measured and fully reflects unrealized gains and losses in addition to realized gains and losses, interest and dividend income.

M

MC TO TOTAL TRACKING ERROR

This value represents the change in the active risk of an asset's portfolio or group that would result from a one percent increase in the asset's effective position plus an equal short position in the benchmark.

O

OPEB CASH POLICY BM

Inception – 9/30/21
FTSE 6 M Treasury Bill Index
10/1/21 – Present
FTSE 3 M Treasury Bill Index

OPEB MT CREDIT POLICY BM

Inception – 9/30/21
50% S&P/LSTA Leverage Loan Index / 30%
BBG BARC US Corp HY Index / 20% JPM
GBI-EM Global Diversified Index
10/1/21 – Present
100% OPEB MT Liquid Credit Policy BM

OPEB MT LIQUID CREDIT POLICY BM

46% Credit Suisse Leverage Loan Index /
38% BBG BARC US Corp HY Index / 8%
JPM EMBI Global Diversified Index / 4% JPM
GBI-EM Global Diversified Index / 4% JPM
CEMBI Broad Diversified Index

OPEB MT GROWTH POLICY BM

MSCI ACWI IMI Net

OPEB MT POLICY BM

Inception – 6/30/18
80% MSCI ACWI IMI Net / 20% FTSE 6 M
Treasury Bill Index
7/1/18 – Present
50% OPEB MT Growth Policy BM / 20%
OPEB MT Credit Policy BM / 20% OPEB MT
RA & IH Policy BM / 10% OPEB BM RR & M
Policy BM

OPEB MT RA & IH POLICY BM

50% DJ US SELECT REAL ESTATE
SECURITIES INDEX / 30% BBG BARC US
Treasury TIPS Index / 20% Bloomberg
Commodity Index Total Return

OPEB MT RR & M POLICY BM

Inception – 6/30/18
FTSE 6 M Treasury Bill Index
7/1/18 – 9/30/21
80% BBG BARC Agg / 20% FTSE 6 M
Treasury Bill Index
10/1/21 – Present
80% BBG BARC Agg / 20% FTSE 3 M
Treasury Bill Index

S

SHARPE RATIO

Average return earned in excess of the risk-free rate per unit of total risk.

STANDARD DEVIATION

Statistical measure of the degree to which an individual value in a probability distribution tends to vary from the mean of the distribution. The greater the degree of dispersion, the greater the risk.

T

TIME-WEIGHTED RETURN (TWR)

A measure of the compound rate of growth in a portfolio. Often used to compare the returns of investment managers because it eliminates the distorting effects on growth rates created by inflows and outflows of money.

TOTAL RISK

The total (gross) risk to an asset (or portfolio), which is the standard deviation of the asset's total return distribution, expressed in percent. Total risk is forecasted using MSCI Barra's multiple factor models. The total risk for an asset depends on the asset's exposures to the risk factors, the factor variance/covariance matrix, and the forecast selection risk of the asset.

TOTAL RISK CONTRIBUTION

The percent of total risk that an individual asset or risk source contributes. For example, a % CR to Total Risk of 10% indicates that 10% of the portfolio's total risk is arising from the portfolio's position in that particular asset.

Y

YIELD TO MATURITY

The return a bond earns on the price at which it was purchased if it were held to maturity. It assumes that coupon payments can be reinvested at the yield to maturity.